

IN THE CLAIMS

Replace the indicated claims with:

- Sub 331  
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1. (Amended) A semiconductor laser device comprising:  
a semiconductor substrate of a first conductivity type;  
a first cladding layer of the first conductivity type disposed on the semiconductor substrate;  
an active layer disposed on the first cladding layer and having uniformly flat upper and lower boundary surfaces in an optical waveguide direction;  
a second cladding layer of a second conductivity type disposed on the active layer;  
and  
a diffraction grating layer having a phase-shifted structure in the optical waveguide direction, between the active layer and one of the first and second cladding layers, wherein  
the diffraction grating layer has a length in the optical waveguide direction  $L \leq 260 \mu\text{m}$ ;  
a mean coupling factor  $\kappa$  of a diffraction grating layer is  $\kappa \geq 150 \text{ cm}^{-1}$ ; and  
 $\kappa L$  satisfies  $5.6 > \kappa L > 3.0$ .
2. (Amended) The semiconductor laser device according to claim 1, wherein power threshold gain  $\alpha_{th}$  per unit length in a principal axial mode satisfies  $7 \text{ cm}^{-1} \leq \alpha_{th} \leq 51 \text{ cm}^{-1}$ .
3. (Amended) The semiconductor laser device according to claim 1, further comprising a heavily-doped p-type region having a carrier concentration of  $10^{18} \text{ cm}^{-3}$  in at least a portion of a p-type layer proximate at least a portion of the active layer.
4. (Amended) The semiconductor laser device according to claim 2, further comprising a heavily-doped p-type region having a carrier concentration of  $10^{18} \text{ cm}^{-3}$  in at least a portion of a p-type layer proximate at least a portion of the active layer.

5. (Amended) The semiconductor laser device according to claim 1, wherein  
 $\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100$ ,

where a composition wavelength of the diffraction grating layer is  $\lambda_g$  (nm) and an oscillation wavelength is  $\lambda_p$  (nm).

6. (Amended) The semiconductor laser device according to claim 2, wherein  
 $\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100$ ,

where a composition wavelength of the diffraction grating layer is  $\lambda_g$  (nm) and an oscillation wavelength is  $\lambda_p$  (nm).

7. (Amended) The semiconductor laser device according to claim 3, wherein  
 $\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100$ ,

where a composition wavelength of the diffraction grating layer is  $\lambda_g$  (nm) and an oscillation wavelength is  $\lambda_p$  (nm).

8. (Amended) The semiconductor laser device according to claim 4, wherein  
 $\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100$ ,

where a composition wavelength of the diffraction grating layer is  $\lambda_g$  (nm) and an oscillation wavelength is  $\lambda_p$  (nm).

9. (Amended) The semiconductor laser device according to claim 1, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

10. (Amended) The semiconductor laser device according to claim 2, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

11. (Amended) The semiconductor laser device according to claim 3, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

12. (Amended) The semiconductor laser device according to claim 4, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

13. (Amended) The semiconductor laser device according to claim 5, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

14. (Amended) The semiconductor laser device according to claim 6, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

15. (Amended) The semiconductor laser device according to claim 7, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

16. (Amended) The semiconductor laser device according to claim 8, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

*IN THE ABSTRACT*

*Replace the abstract with:*

**ABSTRACT OF THE DISCLOSURE**

An n-InP second upper cladding layer is laid on a p-InP lower cladding layer while an active layer having upper and lower boundary surfaces that are uniformly flat in an optical waveguide direction is interposed therebetween. A diffraction layer having a